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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,669	12/20/2000	Angel Lozano	1298/0G828	9936

22046 7590 04/21/2004

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EXAMINER

SCHEIBEL, ROBERT C

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/742,669

Applicant(s)

LOZANO, ANGEL

Examiner

Robert C. Scheibel

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims **6, 13, 18-19, 21, and 26** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims **18-19, and 21** recite the limitation "the receiver" in line 2 (claim 18), line 2 (claim 19), and lines 2 and 5 (claim 21). There is insufficient antecedent basis for this limitation in the claim.

Claim **6** recites the limitation "said step of communicating the VBR data stream using CDM/CDMA" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. This rejection can be overcome by changing VBR to CBR.

Claims **13 and 26** provide the limitation that "one of the first spreading factor codewords are different from the second spreading factor codewords and the first spreading factor codewords are the same as the second spreading factor codewords". It is unclear what this limitation means as the first set of codewords can be only identical to the second set of codewords or different than the second set. This claim needs to more clearly indicate the intended limitation.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims **1-3, 5, 9, 11-16, 18, 22, and 24-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,711,144 to Kim et al in view of U.S. Patent 6,181,684 to Turcotte et al.

Regarding claims **1 and 14**, Kim discloses a method of transmitting voice (CBR) and data (VBR) traffic using CDMA and TDMA. In the abstract and in lines 47-55 of column 1, Kim discloses the step of determining whether the data stream is voice (CBR) or data (VBR) by indicating that these two types of traffic are transmitted using different multiple access methods; it is essential that the data stream be classified as one of these two types in order to be able to transmit them using different multiple access methods. Kim discloses the voice traffic being sent using CDMA and the data traffic being sent using TDMA in the last 3 lines of the abstract and in lines 47-55 of column 1. These lines anticipate the step of communicating the CBR data stream using Code Division Multiplexing/Code Division Multiple Access ("CDM/CDMA") with first spreading factor codewords, whereby a CBR-CDMA data signal is generated. These lines also disclose the limitation of the step of transmitting VBR data by using Time Division Multiplexing/Time Division Multiple Access ("TDM/TDMA"). Regarding claim 14, the BS ("B") of Figure 5 discloses the transmitter.

Kim does not disclose expressly the limitation using a combination of TDMA and CDMA with second spreading factor codewords (in the step of communicating the VBR data stream).

Turcotte teaches the use of a combination of multiple access techniques in transmitting data in lines 11-13 of column 3. In this passage, Turcotte teaches that any combination of the listed multiple access techniques (including CDMA and TDMA) can be used.

Kim and Turcotte are analogous art because they are from the same field of endeavor of multiple access techniques for wireless communications systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Kim to transmit the data (VBR) using a combination of CDMA and TDMA.

The motivation for doing so would have been to optimize the utilization of a wireless communication link in a limited bandwidth system as suggested by Turcotte in lines 59-62 of column 2.

Therefore, it would have been obvious to combine Turcotte with Kim for the benefit of optimizing the link utilization to obtain the invention as specified in claims 1 and 14.

Regarding claims **2 and 15**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the step of spreading the CBR data and the step of then transmitting the data in lines 13-15 of column 5.

Regarding claims **3 and 16**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the step of spreading the VBR data stream and the step of then transmitting the data in lines 13-15 of column 5.

Regarding claims **5 and 18**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the limitation of despreading and extracting such signal using the corresponding first spreading factor codeword in lines 62-65 of column 3. This passage indicates that the receiver must know the Walsh codes for use in receiving the voice transmissions; this indicates that the receiver will despread the data using these known codes.

Regarding claims **9 and 22**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the limitation that the first spreading factor codewords are calculated based on the data rate required for the corresponding applications in Figures 3 and 4. As described in lines 48-62 of column 4, these figures show 2 different designs for communicating the voice (CBR) traffic. The lines from 59-62 of column 4 indicate that these options can be used simultaneously, one for one user and the other for another user. The two methods differ in the rate of data output from the convolutional encoder 34; based on this different rate of data, the Walsh codes are calculated differently. The limitation of calculating the second spreading factor codeword based on the available transmission power after the necessary power has been allocated to all the signals using the first spreading factor codewords is suggested by lines 43-46 of column 5. This passage teaches the concept of basing the admission

of an additional call (using the first spreading factor codewords) based on the available power.

Kim does not disclose expressly applying this concept to the second spreading factor codewords. However, it would have been obvious to apply this same concept to the second spreading factor codewords used in the combination of Kim and Turcotte described above in the rejection of claims 1 and 14. The motivation for doing so would have been to better utilize the resources as suggested by Kim in lines 50-53 of column 5. Therefore, it would have been obvious to modify the combination of Kim and Turcotte to calculate the second spreading factor codewords based on the available transmission power for the benefit of better utilization of resources to obtain the invention as specified in claims 9 and 22.

Regarding claims **11 and 24**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the limitation that communication system simultaneously accepts CBR and VBR data streams, the CBR and VBR data streams being communicated as a single aggregated signal in lines 18-20 of column 2 which indicates that the voice (CBR) and data (VBR) are supported on the same carrier.

Regarding claims **12 and 25**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the limitation that the transmitter modifies first spreading factor codewords on-the-fly for the CBR portion of the signal in lines 50-53 of column 5. This passage indicates that the Walsh codes are reassigned as the system is running.

Kim does not disclose expressly the limitation of the transmitter modifying the second spreading factor codewords on-the-fly for the VBR portion of the signal. However, it would have been obvious to apply this same concept of reassigning the codewords when new VBR data arrived to the second codewords in the combination of Kim and Turcotte described in the rejection of claims 1 and 14. The motivation for doing so would have been to better utilize the resources as suggested by Kim in lines 50-53 of column 5. Therefore, it would have been obvious to modify the combination of Kim and Turcotte to reassign the second spreading factor codewords when new VBR data arrived for the benefit of better utilization of resources to obtain the invention as specified in claims 12 and 25.

Regarding claims **13 and 26**, with the limitations of the parent claims 1 and 14 addressed above, Kim does not expressly disclose the limitation that the first and second spreading factor codewords are one of the same or different from each other. However, Kim does disclose that some of the first codewords used for voice can be the same in lines 8-9 of column 4. It would have been obvious to reuse the same Walsh codes in MSs for voice and data (first and second spreading factor codewords) in the combination of Kim and Turcotte. The motivation for doing so would have been for better utilization of the bandwidth by reusing these codewords. Therefore, it would have been obvious to modify the combination of Kim and Turcotte for the benefit of better utilization of bandwidth to obtain the invention as specified in claims 13 and 26.

5. Claims **1-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,711,144 to Kim et al in view of U.S. Patent 5,511,068 to Sato.

Regarding claims **1 and 14**, Kim discloses a method of transmitting voice (CBR) and data (VBR) traffic using CDMA and TDMA. In the abstract and in lines 47-55 of column 1, Kim discloses the step of determining whether the data stream is voice (CBR) or data (VBR) by indicating that these two types of traffic are transmitted using different multiple access methods; it is essential that the data stream be classified as one of these two types in order to be able to transmit them using different multiple access methods. Kim discloses the voice traffic being sent using CDMA and the data traffic being sent using TDMA in the last 3 lines of the abstract and in lines 47-55 of column 1. These lines anticipate the step of communicating the CBR data stream using Code Division Multiplexing/Code Division Multiple Access ("CDM/CDMA") with first spreading factor codewords, whereby a CBR-CDMA data signal is generated. These lines also disclose the limitation of the step of transmitting VBR data by using Time Division Multiplexing/Time Division Multiple Access ("TDM/TDMA"). Regarding claim 14, the BS ("B") of Figure 5 discloses the transmitter.

Kim does not disclose expressly the limitation using a combination of TDMA and CDMA with second spreading factor codewords (in the step of communicating the VBR data stream).

Sato teaches the use of a combination of multiple access techniques in transmitting data in lines 2-6 of the abstract.

Kim and Sato are analogous art because they are from the same field of endeavor of multiple access techniques for wireless communications systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Kim to transmit the data (VBR) using a combination of CDMA and TDMA.

The motivation for doing so would have been to increase the capacity of channels as suggested by Sato in lines 25-27 of column 2.

Therefore, it would have been obvious to combine Sato with Kim for the benefit of increasing the capacity of channels to obtain the invention as specified in claims 1 and 14.

Regarding claims **4, 7-8, 17, and 20-21**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the step of spreading the VBR data (in claims 4, 7, 17, and 20) and the step of then transmitting the data (in claims 4, 7, 17, and 20) in lines 13-15 of column 5. Kim also discloses in

Kim does not disclose expressly the step/limitation of placing the spread data signal in data packets or the step/limitation of interleaving the data packets with TDM/TDMA (in claims 4, 7, 17, and 20). Kim also does not disclose expressly the step/limitation of despread the TDMA-CDMA signal using the second spreading factor and necessary processing (in claims 8 and 21) or the step/limitation of deinterleaving the TDMA-CDMA data signal with TDM/TDMA (in claims 8 and 21).

Sato discloses the step/limitation of placing the CDMA data signal in data packets in the modulator 45 of Figure 2 and described in lines 24-30 of column 5. The spread signal sequence tdc is the CDMA data signal, and the sequence of modulated signals are the data packets. Sato discloses the step/limitation of interleaving the data

packets with TDM/TDMA to generate a CDMA-TDMA data signal in the burst transmitter 47 of Figure 2. The burst transmitted out the antenna 51 of MS1 is a CDMA-TDMA data signal and it is interleaved with the analogous burst transmitted from MS2 and other mobile stations.

Sato also discloses the step of despreading the VBR-TDM-CDM or VBR-TDMA-CDMA data signal using the second spreading factor codeword and necessary processing in the adaptive filter 57 in Figure 2. As described in lines 30-33 of column 6, the filter performs an inverse spread operation. Sato discloses the step of deinterleaving the VBR-TDM-CDM or VBR-TDMA-CDMA data signal with TDM/TDMA in the memory 81 of Figure 6. As described in lines 7-13 of column 9, the memory is capable of storing the samples for a single time slot; the data for that time slot has thus been deinterleaved from the TDMA-CDMA signal received by the antenna 53.

Kim and Sato are analogous art because they are from the same field of endeavor of multiple access techniques for wireless communications systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Kim to transmit and receive the data (VBR) using the transmitter/method shown in MS1 and MS2 of Figure 2 and the receiver/method shown in BS1 and BS2 of Figure 2.

The motivation for doing so would have been to increase the capacity of channels as suggested by Sato in lines 25-27 of column 2.

Therefore, it would have been obvious to combine Sato with Kim for the benefit of increasing the capacity of channels to obtain the invention as specified in claims 4, 7-8, 17, and 20-21.

Regarding claims **2 and 15**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the step of spreading the CBR data and the step of then transmitting the data in lines 13-15 of column 5.

Regarding claims **3 and 16**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the step of spreading the VBR data stream and the step of then transmitting the data in lines 13-15 of column 5.

Regarding claims **5, 6, 18, and 19**, with the limitations of the parent claims 1, 4, 14, and 17 addressed above, Kim discloses the limitation of despreading and extracting such signal using the corresponding first spreading factor codeword in lines 62-65 of column 3. This passage indicates that the receiver must know the Walsh codes for use in receiving the voice transmissions; this indicates that the receiver will despread the data using these known codes.

Regarding claims **9, 10, 22, and 23**, with the limitations of the parent claims 1, 4, 14, and 17 addressed above, Kim discloses the limitation that the first spreading factor codewords are calculated based on the data rate required for the corresponding applications in Figures 3 and 4. As described in lines 48-62 of column 4, these figures show 2 different designs for communicating the voice (CBR) traffic. The lines from 59-62 of column 4 indicate that these options can be used simultaneously, one for one user and the other for another user. The two methods differ in the rate of data output from

the convolutional encoder 34; based on this different rate of data, the Walsh codes are calculated differently. The limitation of calculating the second spreading factor codeword based on the available transmission power after the necessary power has been allocated to all the signals using the first spreading factor codewords is suggested by lines 43-46 of column 5. This passage teaches the concept of basing the admission of an additional call (using the first spreading factor codewords) based on the available power.

Kim does not disclose expressly applying this concept to the second spreading factor codewords. However, it would have been obvious to apply this same concept to the second spreading factor codewords used in the combination of Kim and Sato described above in the rejection of claims 1 and 14. The motivation for doing so would have been to better utilize the resources as suggested by Kim in lines 50-53 of column 5. Therefore, it would have been obvious to modify the combination of Kim and Sato to calculate the second spreading factor codewords based on the available transmission power for the benefit of better utilization of resources to obtain the invention as specified in claims 9, 10, 22, and 23.

Regarding claims **11 and 24**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the limitation that communication system simultaneously accepts CBR and VBR data streams, the CBR and VBR data streams being communicated as a single aggregated signal in lines 18-20 of column 2 which indicates that the voice (CBR) and data (VBR) are supported on the same carrier.

Regarding claims **12 and 25**, with the limitations of the parent claims 1 and 14 addressed above, Kim discloses the limitation that the transmitter modifies first spreading factor codewords on-the-fly for the CBR portion of the signal in lines 50-53 of column 5. This passage indicates that the Walsh codes are reassigned as the system is running.

Kim does not disclose expressly the limitation of the transmitter modifying the second spreading factor codewords on-the-fly for the VBR portion of the signal. However, it would have been obvious to apply this same concept of reassigning the codewords when new VBR data arrived to the second codewords in the combination of Kim and Sato described in the rejection of claims 1 and 14. The motivation for doing so would have been to better utilize the resources as suggested by Kim in lines 50-53 of column 5. Therefore, it would have been obvious to modify the combination of Kim and Sato to reassign the second spreading factor codewords when new VBR data arrived for the benefit of better utilization of resources to obtain the invention as specified in claims 12 and 25.

Regarding claims **13 and 26**, with the limitations of the parent claims 1 and 14 addressed above, Kim does not expressly disclose the limitation that the first and second spreading factor codewords are one of the same or different from each other. However, Kim does disclose that some of the first codewords used for voice can be the same in lines 8-9 of column 4. It would have been obvious to reuse the same Walsh codes in MSs for voice and data (first and second spreading factor codewords) in the combination of Kim and Sato. The motivation for doing so would have been for better

utilization of the bandwidth by reusing these codewords. Therefore, it would have been obvious to modify the combination of Kim and Sato for the benefit of better utilization of bandwidth to obtain the invention as specified in claims 13 and 26.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,009,087 to Uchida et al and U.S. Patent 5,373,502 to Turban both teach communication systems which use TDMA and CDMA hybrid multiple access schemes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 703-305-9062. The examiner can normally be reached on 6:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 703-308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2666

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ACS 4-16-04
Robert C. Scheibel
Examiner
Art Unit 2666

DM

DWIGHT
PATENT EXAMINER